

**COST CONTROL POLICIES AND GUIDELINES
FOR THE
VIRGINIA WATER QUALITY IMPROVEMENT FUND
POINT SOURCE POLLUTION CONTROL PROGRAM**



**Virginia Department of Environmental Quality
October 2007**

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I. EXECUTIVE SUMMARY

This report responds to the 2007 General Assembly's approval of HB1710/SB771, Enactment Clause 2, which directed the Department of Environmental Quality to identify and evaluate options to ensure the efficient use of grants awarded under the Water Quality Improvement Fund (WQIF) Point Source Pollution Control Program. The process used to develop these cost control measures involved public participation, through formation of a Technical Advisory Group (TAG) with representatives from local government, publicly owned wastewater treatment facilities, the conservation community and DEQ technical staff, as well as a 30-day public review and comment period. As specified in the relevant General Assembly bills, the TAG considered the following:

- (i) Evaluation of eligible and appropriate costs;
- (ii) Applicability of the Virginia Public Procurement Act (Va. Code § 2.2-4300);
- (iii) Voluntary nutrient credit trading;
- (iv) Basing grant amounts on facility optimization using full life-cycle cost evaluation;
- (v) The ability to limit or exclude reimbursements based upon a comparison of costs to upgrade or build versus the purchase of credits; and,
- (vi) The ability to prioritize grant agreements based on the river-basin optimization plans submitted under the Watershed General Permit for Nutrient Discharges and Trading.

In addition to these particular items, the TAG also discussed:

- Alternative procurement methods such as Design-Build and Public-Private Partnerships;
- Use of Value Engineering Analysis; and,
- Possibilities for influencing the bidding climate to reduce market "premiums".

Based on this work, DEQ has revised existing WQIF cost control measures and incorporated these new guidelines and policies in agency guidance that governs the award and use of these grants. Highlights of the revisions and additions contained in the agency guidance are:

- Consistent with the Virginia Clean Water Revolving Loan Fund procedures, specifically state that the Public Procurement Act applies to all WQIF grantees (no exception for localities with population less than 3,500) to assure costs are fair and competitive.
- Adding example references for anticipated costs of basic construction materials and skilled labor beyond the Engineering News Record Index, to include the Association of General Contractors and U.S. Bureau of Labor Statistics indices, as needed.
- State support for use of "Design-Build", Public-Private Partnerships, or other approved procurement methods selected by the grantee as alternatives to competitive, sealed bidding.
- Value Engineering Analysis required when a project's capital cost estimate for the nutrient reduction technology (NRT) portion is equal to or greater than \$10 million; analysis is optional for smaller projects.
- A Life Cycle Cost Evaluation required for the selected NRT system and the other feasible options considered, and also on an "as needed" basis for individual units comprising the selected NRT system.
- The criteria used to determine if nutrient credit exchange would be significantly more cost-effective than NRT installation will include, but not be limited to, the cost per pound of nutrient reduced at design flow, cost per million gallons treated, and other non-monetary factors such as environmental and treatment benefits beyond nutrient reduction (e.g., treating septage to encourage proper management of on-site systems in the surrounding

- community).
- To aid in implementing the Nutrient Credit Exchange Program, require that any credits generated by a facility receiving WQIF funds will be made available for nutrient allocation compliance.

II. EVALUATION OF EXISTING COST CONTROL MEASURES AND DEVELOPMENT OF NEW POLICIES AND GUIDELINES

A. Legislative Authorization

The 2007 General Assembly approved the following provision (HB1710/SB771, Item 2):

That the Department of Environmental Quality shall identify and evaluate options to ensure the efficient use of any grants authorized by the Water Quality Improvement Act (§10.1-2117 et seq. of the Code of Virginia). Any grant issued after October 1, 2007, shall include policies and guidelines governing the use of such grants that include the enforcement of appropriate cost control measures for the use of the grants. The Department shall work with representatives from local governments and the conservation community to evaluate the optimal use of existing and potential cost control measures, including but not limited to (i) evaluation of eligible and appropriate costs, (ii) applicability of the Virginia Public Procurement Act (§2.2-4300 et seq. of the Code of Virginia), (iii) voluntary nutrient credit trading, (iv) basing grant amounts on facility optimization using full life-cycle cost evaluation, (v) the ability to limit or exclude reimbursements based upon a comparison of costs to upgrade or build versus the purchase of credits, and (vi) the ability to prioritize grant agreements based upon the river-basin optimization plans. Such policies and procedures shall be developed no later than October 1, 2007.

B. Purpose and Methods Used

The purpose of these guidelines and policies is to ensure that grant funds provided by the State are used in a cost-effective manner, and maximize the amount of point source nutrient load reduction in the Chesapeake Bay watershed per dollar spent. These cost control measures are essential in developing the grant-eligible scope of work for each project, and aid in implementing the Nutrient Credit Exchange Program.

The process used to develop these cost control measures involved public participation, through use of a Technical Advisory Group (TAG) with representatives from local government, publicly owned wastewater treatment facilities, the conservation community and DEQ technical staff, as follows:

Table 1 – Cost Control Measures Technical Advisory Group	
Name	Representing
1. Alan Pollock	DEQ-Water Quality Programs, TAG Chairman
2. Tim Castillo	Nelson Co. PSA (non-significant dischargers)
3. Mike Gerel	Chesapeake Bay Foundation
4. Walter Gills	DEQ-Construction Assistance Program
5. Mark Haley	Virginia Nutrient Credit Exchange Association

6. Frank Harsen	Virginia Assoc. of Municipal Wastewater Agencies
7. Larry Land	Virginia Association of Counties
8. Nathan Lott	Virginia Conservation Network
9. Denise Thompson	Virginia Municipal League
State Resource Staff	
10. John Kennedy	DEQ-Chesapeake Bay Program, staff lead
11. Allan Brockenbrough	DEQ-Water Permits
12. Marcia Degen	DEQ-Office of Wastewater Engineering
13. Bob Ehrhart	DEQ-Chesapeake Bay Program
14. Vijay Satyal	DEQ-Office of Policy

Note: Invited, but unable to participate - Bill Street, James River Association

TAG meetings were held on 5/30/07 and 6/29/07 to review existing cost control measures in DEQ Guidance Memorandum #06-2012, and discuss the potential new policies and guidelines listed in the statute, as well as several topics beyond that particular list which offered possibilities to aid in controlling excessive costs. Meeting summaries are accessible online at these weblinks:

- May 30, 2007 TAG Meeting: <http://www.deq.virginia.gov/bay/TAGsummaryMay30.pdf>
- Follow-up Questions and Action Items:
<http://www.deq.virginia.gov/bay/TAGfollowupQandAfromMay30.pdf>
- June 29, 2007 TAG Meeting: <http://www.deq.virginia.gov/bay/TAGsummaryJune29.pdf>

In addition, the draft cost control policies and guidelines were made available for a 30-day public review and comment period, which ran from 8/14/07 to 9/14/07. Three sets of comments were received, and are summarized in Section II.E. Also included are the DEQ staff response to comments, and an explanation of changes made to the draft document based on those comments.

C. Evaluation of Measures Listed in HB1710/SB771, Item 2.

- (i) Evaluation of eligible and appropriate costs: Since the beginning of the WQIF grant program, grants have been generally limited to the design and installation of nutrient reduction technology (NRT), per the Virginia Code. The TAG members agreed that continuing use of a review checklist (see Attachment B - GM #06-2012, Item #4 and App. B) by DEQ-WQIF staff is acceptable and should continue. The checklist guides eligibility determinations for multi-purpose units and expanded tankage, where the eligibility is limited only to nutrient removal requirements. This checklist is subject to change, for example as new technologies are introduced.
- (ii) Applicability of the Virginia Public Procurement Act (PPA; Virginia Code § 2.2-4300): Compliance with the PPA (as well as all other applicable statutes) has always been a WQIF grant program requirement. The TAG agreed that GM #06-2012 should specifically state that, for consistency with DEQ's Virginia Clean Water Revolving Loan Fund (VCWRLF) procedural guidelines, the PPA provisions apply to all grantees, with no exception for smaller localities (population of 3,500 or less).
- (iii) Voluntary nutrient credit trading: This measure was recognized by the TAG as one of the most complicated to evaluate, given the fact that pricing for nutrient credits has been initially established at a relatively low cost by the Nutrient Credit Exchange Association

(NCEA) to encourage credit purchase and make it more cost-effective for willing plant owners to delay their NRT retrofits. In comparison to the low credit cost, it might be difficult to identify any NRT installation as “cost-effective”, but it is certain that some number of upgrades must take place to generate credits and achieve the basin-level nutrient waste load allocations by the compliance date in the Chesapeake Bay Watershed General Permit. Therefore, the TAG discussed the use of “unit values” in the evaluation of nutrient credit trading, including but not limited to the cost per pound of nutrient reduced at design flow or cost per million gallons treated, in comparison to the cost of available credits to see where “significant” cost-efficiencies can be realized. Other non-monetary factors may also apply, such as receiving water quality considerations (e.g., “hot spots” or impaired waters; areas requiring more stringent nutrient treatment than the Chesapeake Bay regulations mandate). This measure will likely have application in basins where excess nutrient credits are predicted and less cost-effective projects could be deferred without affecting compliance with the Chesapeake Bay Watershed General Permit or any individual permit requirements.

- (iv) Basing grant amounts on facility optimization using full life-cycle cost evaluation: One challenge that DEQ-WQIF staff has in reviewing grant project proposals is balancing cost-effectiveness with system reliability and good nutrient reduction performance, while not dictating the means or methods employed for treatment. While the WQIF provides a portion of the funds for the design and construction of an NRT project, plant owners and ratepayers typically pay the majority of the capital costs and, therefore, have a great incentive to keep costs down. System selection, as well as certifying operation to comply with the design intent and permit requirements, is the responsibility of the owner and his licensed consulting engineer. Although an owner is free to choose the NRT system to be installed, cost-effectiveness from the standpoint of the grant can still be accomplished if eligibility is limited or prorated based on the least-cost feasible alternative. An owner may demonstrate that a higher cost alternative is justified, examples being compatibility with existing treatment units or benefits for operation and maintenance. A life-cycle cost analysis will be required at the stage when the Preliminary Engineering Report is prepared, for the overall NRT system selected and the feasible options considered so this evaluation can be made.
- (v) The ability to limit or exclude reimbursements based upon a comparison of costs to upgrade or build versus the purchase of credits: The TAG concluded that this measure was essentially covered in discussions and recommendations for criteria (iii) above.
- (vi) The ability to prioritize grant agreements based on the river-basin optimization plans submitted under the Watershed General Permit for Nutrient Discharges and Trading: Currently, the primary factor used to prioritize grant agreements for selected projects is readiness-to-proceed. This is evidenced by submission of an acceptable Preliminary Engineering Report, so that sufficient information is available to draft a grant agreement scope of work and make an eligibility determination for the NRT system to be installed. Based on applications received to-date, it appears that the major “lynch pin” projects in the Bay watershed needed to achieve the basin-level waste load allocations are moving forward with design or construction, and perhaps this additional priority consideration wasn’t needed. The TAG focused on ways the grant agreements could be better

integrated with the “optimization plans” (i.e., Compliance Plans required for submission by the affected owners by August 1, 2007, under the Chesapeake Bay Watershed General Permit) by aiding the generation, or ensuring the availability of nutrient credits for trading. Suggestions included:

- Using WQIF funds to reimburse owners for credit purchases, in lieu of installing NRT. This would necessitate a change in the Virginia Code, as grants are currently limited to the design and installation of nutrient reduction technology, and was deemed to be beyond the scope of these Guidelines.
- Requiring that a portion of any credits generated by a grant-funded project be made available for trading. Some complications arose regarding the credit structure already created by the NCEA (i.e., Class ‘A’ and ‘B’ credits), and whether or not a WQIF grantee is a member of the NCEA. It was proposed that the grant agreement should require that at least 50% of any credits generated in a calendar year by an NCEA member, or 75% for a non-member, be made available for trading. If long-term arrangements can be made for these credits, use of 5-year, renewable increments would be considered to coincide with the reissuance cycle of the Chesapeake Bay Watershed General Permit. It was decided, after reviewing comments on the Draft Report, to simply state that to aid in implementing the Nutrient Credit Exchange Program, WQIF grantees shall make all credits generated in a calendar year available for nutrient allocation compliance. This provision does not commit or obligate the grantee to actually produce credits. It will require that the credits be available, after they are produced and the amount is known, to other facilities in the same watershed if needed for compliance purposes.

D. Additional Measures Considered

The TAG expressed great interest in exploring additional methods to maximize cost-effectiveness or expedite NRT project schedules beyond the list of measures in the legislation. Most notable of these were:

- Alternative procurement methods such as Design-Build and Public-Private Partnerships: Although the Public Procurement Act states that the usual (and preferred) method to secure professional services is the competitive bidding process, there are approved alternatives that are gaining acceptance. The “Design-Build” process has the potential to reduce delivery time and capital cost by overlapping the design phase and construction phase of a project. The TAG heard a presentation from the Prince William County Service Authority on the use of “Design-Build” for upgrade/expansion of their H.L. Mooney plant. The Authority has seen very positive results from this process, with proven time and cost savings such as the ability to initiate construction with partial documents (ultimately 100% complete), use of value engineering by a design team, ongoing constructability reviews, and early equipment acquisition. A prerequisite for a public body to be eligible for use of “Design-Build” is approval from the Design-Build/Construction Management Review Board, pursuant to Virginia Code §2.2-2406.

The use of Public-Private Partnerships (under the Public-Private Education Facilities and Infrastructure Act, “PPEA”; Virginia Code §56-575.1) brings private funding and risk to public projects, helps expedite schedules for time-sensitive projects, allows for creative financing and brings innovative thinking and vision from the private sector. Prior to using

this procurement method, “responsible public entities” must adopt a set of PPEA guidelines consistent with the statute; model guidelines are available from the Division of Legislative Services (DLS; see link at dls.state.va.us/ppea.htm).

The TAG agreed that these alternative procurement methods should be supported and encouraged for use on WQIF-funded projects. The cost control guidelines will express the State’s support for these owner-selected alternatives, and provide information about required approvals and information sources to aid the localities’ understanding of these methods. Prince William County S.A. has agreed to make their presentation available to anyone interested, and DEQ staff has a presentation for distribution on use of the PPEA that was provided by DLS.

- Use of Value Engineering (VE) Analysis: The intent of VE analysis is to reduce cost without reducing product or process performance. It typically involves a VE Team in a short-term workshop setting, taking a systematic and creative approach to identify unnecessary high costs in a project that can be reduced, without sacrificing reliability or efficiency, or increasing operation and maintenance costs. The TAG received information from the Hampton Roads Sanitation District on use of VE analysis for two recent HRSD wastewater projects. The analysis yielded very positive results for HRSD, summarized as follows:
 - Chesapeake/Elizabeth STP:
 - VE Workshop in 2002
 - 4 Team Members from Design Engineer
 - 2 Team Members from HRSD
 - 3-day workshop
 - Cost for VE Workshop = \$20,000
 - VE Cost Savings = \$473,000
 - Ratio of Savings per VE dollar spent = 24:1
 - Project Construction Cost = \$34 million
 - Atlantic STP:
 - VE Workshop in 2005
 - 5 Team Members from Design Engineer
 - 2 Team Members from HRSD
 - 5-day workshop
 - Cost for VE Workshop = \$90,000
 - VE Cost Savings = \$2,000,000
 - Ratio of Savings per VE dollar spent = 22:1
 - Project Construction Cost = \$140 million

The TAG agreed that requiring VE Analysis was justified for WQIF-funded projects where the estimated cost of the NRT portion was \$10 million or greater. There is precedence for requiring VE Analysis; it was an essential part of the EPA Construction Grants Program in the 1970’s and 1980’s, and Virginia Code mandates its use by State agencies for capital outlay projects of \$5 million or more.

- Possibilities for influencing the bidding climate to reduce market “premiums”: Nutrient reduction retrofits are underway at numerous plants across Virginia’s Chesapeake Bay watershed, as well as in Maryland and Pennsylvania. The demand for professional services,

including design engineers and construction contractors, along with competition for limited supplies of construction materials and skilled labor are causing significant increases in the cost of NRT projects. Another influencing factor is the reduced number of companies, due to consolidation, that bond construction projects. Recent bids received on WQIF-funded projects have exceeded engineer's estimates, in some cases by 25% or more. For these reasons, the TAG discussed options that might help contain escalating bid prices, including:

- Have localities share risk with the contractor to eliminate "fright money" (bid escalation or a premium intended to offset unknown future cost of materials). This might be accomplished by establishing a contract/commodity price index, or allowing for escalation factors, with a "not-to-exceed" cap on total project cost. Incentives could be built-in to a contract whereby the contractor shares in a percentage of any capital savings at the end of a project. Because the WQIF can only reimburse a grantee for actual costs expended on eligible items, the grant cannot be used for "cost-avoidance" incentives; however, this is an option the grantee might consider using just local funds.
- Break a project into smaller divisions or use a phased approach with third party construction management to attract more bidders and lessen the total cost. The WQIF program is already anticipating use of this approach in order to "phase" the NRT installation and will work with grantees to secure an incremental or, in some cases, a conditional Certificate to Operate for work completed. The cost control guidelines won't require subdividing a project, but it is an option for the owner to consider along with the potential trade-offs between project complexity/construction management and the benefits of enhanced competitive bidding by more/smaller contractors.

E. Summary of Public Comment and Staff Response

Three sets of comments were submitted by the deadline, from:

- Fauquier County Water and Sanitation Authority
- Virginia Association of Municipal Wastewater Agencies
- Hampton Roads Sanitation District (HRSD).

Fauquier County Water and Sanitation Authority (FCW&SA)

1. **Comment:** Regarding upgrades in progress – Appreciate the need to manage WQIF wisely and efforts evident in the Guidelines to provide flexibility; concerned that adopting new Guidelines at this late juncture could be very disruptive and have undue adverse impacts on ongoing nutrient control efforts, depending on how they are applied in the future. FCW&SA responded to the Commonwealth's encouragement that localities proceed with nutrient control. Withholding WQIF funding from upgrades in progress would be extremely unfair no matter how less expensive either nutrient controls at other facilities or nutrient trading may be. Hope that we would be credited for proceeding diligently with NRT, not punished, and the Guidelines would accommodate progress made prior to their issuance.

***Response:** The existing cost control measures included in DEQ Guidance Memorandum (GM) #06-2012 continue to be applied to all grant applications; the revisions and additions effective 10/1/07 will apply to grant agreements signed after that date. GM #06-2012 will be revised as described in the response to VAMWA's Comment #2 regarding the application of new cost control guidelines to projects underway.*

2. **Comment:** Plant Expansions and Nutrient Removal Technology (NRT) Installation – DEQ has often made the point that all facilities are eventually going to state-of-the-art nutrient controls. Therefore, it makes sense to install NRT when other major projects are underway. In fact, DEQ regulations force state-of-the-art NRT installation during an expansion; these two reasons rule out foregoing NRT installation. WQIF grant program must be consistent and fund these projects; ask that DEQ discuss and include these considerations in the Guidelines.

Response: Agree that NRT can be cost-effectively installed at the same time that other major facility upgrading/expansion is planned. If conditions allow, the owner does have alternatives to installing state-of-the-art (SOA) treatment which are listed in both the legislation creating the Nutrient Credit Exchange Program (“NCEP”; see Va. Code § 62.1-44.19:16.A.) and the Regulation for Nutrient Enriched Waters and Dischargers Within the Chesapeake Bay Watershed (see 9 VAC 25-40-70-A.4.). If an owner expands his plant and is required to install SOA, due to the plant location and magnitude of the expansion, the option to secure credits as an alternative to technology installation is not available. Therefore, the comparison of cost to upgrade versus using nutrient credits would not be made and the Director’s discretion to defer a project’s grant funding would not apply.

3. **Comment:** Nutrient Allocation Contingencies (Footnotes) – Several facilities are subject to footnote deadlines in the WQMP Regulation. These regulatory conditions require facilities to be expanded by 12/31/10 or the assigned nutrient allocations are automatically decreased to specified lower amounts. It is impractical to omit NRT for the reasons in comment #2, but it also seems unfair to impose a deadline but withhold grant funds based on credit cost comparisons. There may be a win-win opportunity if footnotes were eliminated -- some facilities might be able to defer an upgrade. Ask that DEQ take these deadlines into account as a “non-monetary” factor in the Guidelines.

Response: The “footnotes” referred to are part of the Water Quality Management Planning Regulation (9 VAC 25-720) and can only be amended under a formal rulemaking, which is an action beyond the scope of developing these Guidelines. As described in Response #2 above, the owner has options available through the NCEP and may be able to defer NRT installation. Several plant owners have projects underway to complete hydraulic expansions to increase design flow, with NRT to be installed in a subsequent phase. They will rely on other measures (e.g., flow less than design capacity, credit exchange, more efficient operation of NRT systems) to comply with their nutrient waste load allocations in the interim; thereby reducing some of the market pressures that could potentially drive up construction costs for upgrade projects.

4. **Comment:** Credit Availability and Pricing Assumptions – An efficient compliance plan has been structured for FCW&SA facilities. In addition to simultaneous expansion and NRT upgrade of Vint Hill (Potomac), we are bubbling/trading between two Rappahannock plants (Remington and Marshall). Given the growth in the Potomac and Rappahannock basins, we question the long-term availability of credits and especially current cost estimates used by the NCEA (publicly acknowledged as artificially low start-up policy; expected to increase over time). The assumed availability of low-cost credits is not a realistic basis for the cost-effectiveness analysis under the Guidelines, especially in the context of capital facilities with useful lives of 20-plus years.

Response: See response to VAMWA Comments #7 and #8.

Virginia Association of Municipal Wastewater Agencies (VAMWA)

1. **Comment:** Point sources should remain the State's highest WQIF funding priority given their exclusive regulatory deadlines (none for nonpoint source controls). With point source WQIF needs of roughly \$750 million based on submitted grant applications, additional funds will be needed above currently appropriations plus authorized (bond) amounts.

Response: Appropriations language typically directs the amounts to be deposited into the WQIF and specifies the use of funds in terms of Point Source and Nonpoint Source Programs. Under certain conditions, the Secretary of Natural Resources has some discretion in allocating funds appropriated to the WQIF between the two Programs (see Va. Code § 10.1-2129). DEQ agrees with the estimate of funding requested under pending applications, and the conclusion that funding needs will likely exceed the amount available plus the authorized bonds that may be provided after 7/1/08.

2. **Comment:** The Guidelines must be flexible to accommodate the diverse circumstances of eligible local governments and their nutrient control projects, especially for those already initiated. The Guidelines should be flexible regarding the extent and manner in which DEQ applies them retroactively. Recommend the following addition to GM #06-2012, after the new heading "6. Methods or Information to Aid in Controlling Excessive Costs" and before the list of items a through i, insert: "The following methods and information shall be considered in developing grant agreements to be executed on or after October 1, 2007. In considering these items and determining whether they are appropriate for a particular grant agreement, DEQ will take into account the status and progress of the nutrient control project for which funding is requested."

Response: Agree, and the suggested language has been inserted into the Guidelines. Since projects are in various stages of readiness-to-proceed at the time grant application is made, DEQ has established processing priority based on project status and agreement negotiations begin only after an acceptable Preliminary Engineering Report is submitted. Other projects may be well into design, construction, or even complete and seeking reimbursement for eligible work in-place. These Guidelines will be used to meet the intent of making efficient use of grant funds and applied appropriately depending on project status.

3. **Comment:** DEQ should ensure that application of the Guidelines is consistent with a grantee's nutrient compliance plan. If an applicant proposes a nutrient upgrade in their Compliance Plan, the assumption is that the State will pay its WQIF share of the eligible project costs. A major concern is the potential situation where a compliance plan is approved including a nutrient upgrade, but then the WQIF grant is denied under the Guidelines. If there are financial impacts due to the use of the Guidelines, the applicant should be given the opportunity to revise its compliance plan and/or grant agreement for consistency. If a project underway has grant funding deferred, at a minimum a Technical Assistance Grant or other appropriate cost-share should be made available for eligible work performed before the effective date of these Guidelines.

Response: Each owner's Nutrient Compliance Plan shall be updated annually. An owner may also revise the WQIF application, and it is typical to have changes occur as agreement negotiations proceed. The DEQ Director has discretionary authority to issue a Technical Assistance (TA) grant, at any time, under the Water Quality Improvement Act (see Va. Code § 10.1-2131.C.) and WQIF Guidelines issued by the Secretary of Natural Resources (Nov. 2006,

Section B.VIII).

4. **Comment:** The concept of “efficient use” of grant funds has been redefined in the Guidelines, which states that the purpose is to “maximize the amount of point source nutrient load reduction in the Chesapeake Bay watershed per dollar spent.” If that were the case, DEQ would simply develop a list of projects based on cost per pound of nutrient removed and deny funding for projects that did not have the lowest cost. The statute establishes no such priority; instead, the DEQ Director now has discretion to deny a grant under defined circumstances (where available nutrient credits are significantly more cost-effective). VAMWA requests that the above quoted “maximize” clause be deleted from the Guidelines.

Response: The language referred to appears in the Report, not in the Guidelines. In the staff’s view, applying cost control measures to make cost effective use of limited grant funds does have the desired effect of maximizing the nutrient reduction achieved using State cost share.

5. **Comment:** The Guidelines describe the Nutrient Credit Exchange Program’s (NCEP) goal as “reduce the capital cost of designing and installing nutrient reduction technology for both localities and the State.” This statement is limiting in a manner that is contrary the NCEP statute. The legislative purpose of the NCEP is to assist in meeting the cap load allocations “cost-effectively.” The draft Guidelines limit the concept of “cost effectiveness” to capital costs only and ignore O&M costs and their impact on Virginia citizens. For good decision-making, all costs must be considered and this concept was accepted during the TAG process. Presumably DEQ, like VAMWA members, is not interested in driving capital costs down while driving up overall costs (taking into account O&M). VAMWA recommends revising the above-quoted sentence as follows: “to reduce the capital cost of designing and, installing, operating and maintaining nutrient reduction technology for both localities and the State.”

Response: Agree in principal, but referenced language has been revised differently in the Report than suggested, to state that the cost control measures are essential in developing each project’s grant eligible scope of work and aid in implementing the NCEP.

6. **Comment:** Downplay the public participation in Guidelines development from “considerable” to just the facts (number of TAG meetings, attendance records and public review). Also, the Report states that the TAG “agreed” to certain points or other indications that the TAG reached a consensus on specific items. Some items were agreed to but others were discussed or accepted for the purpose of proceeding to public comment and not necessarily as an endorsement of the specific item. Request this wording be changed as appropriate to the “TAG discussed” a particular item rather than “agreed.”

Response: Report revised as suggested.

7. **Comment:** Regarding use of the NCEP in lieu of grant award, given the voluntary nature of the NCEP, the unpredictable availability of credits, and the artificially low basis for the Nutrient Credit Exchange Association’s (NCEA) initial prices, recommend as a starting point using the prices stated in the General Permit for credits acquired through the WQIF: \$11.06 per pound TN and \$5.04 per pound TP. Also recommend two revisions to GM #06-2012 in the proposed section “6. Methods or Information to Aid in Controlling Excessive Costs,” at section i.1., as follows:

- In the first sentence, change the phrase “using nutrient credits” to “*using reasonably available nutrient credits.*”

- Revise second sentence in the list of criteria as follows: “...compared to prevailing prices for available nutrient credits reasonable estimates of nutrient credit prices over the life cycle of the project.”

Response: *The wording in the first bullet will remain unchanged, as it is taken directly from the VA Code (see § 10.1-1186.01.G.). For the second bullet, the Guidelines have been revised to make reference to the cost of nitrogen and phosphorus credits acquired from the Water Quality Improvement Fund as specified in the Chesapeake Bay Watershed General Permit Regulation (9 VAC 25-820-70-Part 1.J.).*

8. **Comment:** Additional “non-monetary” factors to consider when evaluating the use of the NCEP in lieu of grant award:

- “the applicant’s opportunity to undertake a nutrient upgrade simultaneously with other facility expansion, upgrade or rehabilitation projects”;
- “the quantity of credits needed compared to the projected supplies available”;
- “the applicant’s ability to assure compliance with permit limits”;
- “the status and progress of the applicant’s nutrient upgrade efforts to date”;
- “future public utility service needs including to meet the needs of growth and economic development”;
- “Water Quality Management Plan Regulation deadlines for completion of the applicant’s expansion projects”.

Response: *Agree with the first two bullets and the Guidelines have been revised accordingly. If the Director determines using credits would be significantly more cost effective than installing nutrient controls at a facility, reliance on the NCEP in lieu of a grant award will recognize that deferred projects are not excluded from receiving cost share at some future date. These projects may be needed to maintain compliance with basin waste load allocations as discharge flows increase due to population growth and development.*

9. **Comment:** Request that the Report disclose the NCEA’s prior requests for assistance in mitigating the risks of relying on nutrient trading, notably the concern that projects that need to be completed by 1/1/2011 to produce credits are at considerable risk of not being completed on time. VAMWA would greatly appreciate DEQ assistance in addressing this important issue and would be glad to work with DEQ to address this item; a successful risk mitigation strategy could bolster trading significantly.

Response: *Beyond the scope of developing these Guidelines.*

10. **Comment:** Regarding use of Life Cycle Cost Analysis, the plant owners and ratepayers typically pay the majority of the capital costs for projects and, therefore, have a great incentive to keep costs down; would appreciate if the Report would acknowledge this. VAMWA agrees with DEQ’s inclusion of language recognizing that higher cost alternatives will be funded when justified and acknowledging that O&M considerations are relevant. With respect to the requirement that life cycle cost analysis be performed at the stage when the PER is prepared, request that DEQ take into account our comment above regarding retroactive application of the new Guidelines to completed project activities.

Response: *Agree and the Report has been revised with additional text in Section II.C.(iv).*

11. **Comment:** The Report does not make any recommendations on grant prioritization based on the compliance plans. Instead, this section of the Report discusses a different concept –

essentially to convert the voluntary NCEP into a mandatory program as to local government projects with partial WQIF funding. If at all, this concept should be addressed in the Report under II.D. “Additional Measures Considered.” If DEQ requires trading as a grant condition, recommend implementation of this concept in light of the legal and other conditions under which VAMWA facilities operate:

- VAMWA agrees that any forced trading should be applied, as stated in the proposal, on the basis of “credits generated” in a calendar year (compliance year). In the immediately-following reconciliation year for trading, the number of credits that were generated would be known and could be used (purchased) if there were any facilities needing such credits. Note that so long as the credits are in fact “generated” (the term from the proposal) and this requirement is applied during the reconciliation year to the immediately-preceding compliance year, the percentage (50%, 75%, or even 100%) becomes irrelevant from a compliance standpoint for the seller (by definition the seller is in compliance).
- VAMWA would disagree with any modifications to the proposal that changed “credits generated” to “credits projected” in a future compliance year, as that would usurp the facility owner's prerogative and obligation to plan for and ensure compliance. Furthermore, it would impose on the grantee a new and additional liability for credit production, which would be unfair and we believe contrary to the governing statutes.
 - A “credits projected” system of forced trading would need to fully protect the owner from any compliance risks associated with forced future trading. Most significantly, DEQ should bear the risk of the forced credits not being available in the future year due for reasons such as project completion timelines, biological treatment challenges, weather and flow variability and other such issues that impact nutrient levels (the permittee of course would remain responsible for meeting his own permit limit – this comment only deals with the mandated credits beyond permit limit compliance).
 - Another prudent measure for a “credits projected” system would be to reserve a compliance buffer in absolute pounds. For example, it would not make sense for a facility with a very small predicted credit surplus to be forced to provide 50% of that amount, when the total projected credits from that facility is such a small number that it could be easily “disappear” as a result of normal treatment variability.
- In attempting at this late stage to create new requirements, DEQ must take into account existing circumstances of individual facilities. VAMWA is aware of situations where DEQ's proposal has the potential to be disruptive of existing efforts and commitments. In one case, a large POTW and a major industry have an existing relationship and contract regarding reuse of reclaimed water and that contract provides for the use of the POTW's available nutrient credits by the industry. In another situation, two localities are considering the potential consolidation of their utility operations, so while they might trade among the plants owned by the two localities, they are not in a position to make future commitments to other parties. Any DEQ requirements on trading must accommodate independent (non-NCEA) arrangements such as these as means of making credits “available.” VAMWA recommends revising Guidance Memo No. 06-2012 in the

proposed section “6. Methods or Information to Aid in Controlling Excessive Costs,” at section i.2., by inserting at the end of the paragraph: *“This provision shall be applied on a case-by-case basis taking into account local circumstances including agreements establishing private exchanges. Any trading required by these guidelines would only affect those credits remaining after existing trading commitments have been satisfied.”*

- With the understanding that this requirement would operate based on credits actually generated, there is no purpose in including the 95% design flow condition. First, this condition is irrelevant as to whether the credits were actually generated. Second, this condition would create yet one more layer of complexity in tracking and applying nutrient credits. VAMWA recommends that the provision simply focus on credits that were actually generated in the compliance year.

Response: To assist the Director in making a determination about the cost effectiveness of an NRT upgrade versus use of the NCEP, it is reasonable to take actions that aid the availability of credits for exchange. By awarding cost share for NRT design and installation, the State has a vested interest in the availability of any credits generated and making this a provision of the agreement does not commit or obligate the grantee to actually produce credits. It will require that the credits be available, after they are produced and the amount is known, to other facilities in the same watershed if needed for compliance purposes. The guidelines have been revised to make this distinction clear.

12. Comment: Request confirmation that State support for alternative procurement methods does not indicate intent to dictate the procurement method. Recommend revising GM #06-2012 in the proposed section “6. Methods or Information to Aid in Controlling Excessive Costs”, at section d as follows: *“Support owner-selected alternative to the standard method of procurement...”*.

Response: Agree and the text has been modified as suggested.

13. Comment: VAMWA agrees “phasing” nutrient upgrades is a great opportunity for some facilities and that it should be supported including with incremental or conditional Certificates to Operate. However, in our members’ experience to date, DEQ staff is not consistently supporting phasing in WQIF grant agreement development. VAMWA requests DEQ provide additional support and consistency in this regard. Costs are negatively impacted by regulatory conditions and restrictions on nutrient waste load allocation (WLA) utilization that are beyond those required by federal law, as follows:

- Automatic Allocation Revocation Under WQMP Footnotes – Consider the footnoted WLAs in the WQMP Regulation, which require certain facilities to complete an expansion by 12/31/10 or the allocation is automatically revoked. Due to timing risks largely associated with the current construction market (including impacts on DEQ’s ability to issue permits, PER approvals, engineering plans and specifications approval, and Certificates to Operate), there is risk associated with relying on completion of these expansion/upgrades to provide Credits. Worse, delay not only fails to deliver Credits but also results in added Credit demand by the same facilities. Given the softening of the housing market, there may be an opportunity to defer these expansions slightly, eliminate the risk of automatic revocation, make these Credits more reliable, and consequently reduce initial Compliance Year demand for projects and WQIF funding. VAMWA recommends

that DEQ extend the footnote revocation provisions to 2015 to mitigate the adverse impacts of the existing footnotes on market premiums and on WQIF grant demand in the peak period prior to 2011.

- Restrictions on Utilization of Unfootnoted WLAs Associated with Pending Expansions – The General Permit Regulation (9 VAC 25-820-70, Part I.J.2.e.) restricts the use of these authorized allocations to the owner. Any Credits derived from the design flow associated with the pending expansion is temporarily set aside and unusable for trading. This tightens Credit availability and increases demand for upgrades in the initial Compliance Year. VAMWA recommends extending this provision to 2015 to mitigate the adverse impacts of this limitation (limiting credit supply and increase WQIF demands).

Response: DEQ staff is supporting “phased” construction projects, and (for example) have drafted agreements that accommodate sequential installation of NRT systems that meet waste load allocations at reduced current flows, with progressively more stringent treatment to be added as flows increase toward design capacity. Several DEQ programs (WQIF, Water Permits, Wastewater Engineering and Construction Assistance) are being coordinated to give the applicants as much flexibility as possible in this regard. The bulleted items are beyond the scope of developing these Guidelines.

14. Comment: This section contains a misstatement of the law: “Now, cost effectiveness will also be an important consideration in prioritizing applications, and an essential factor in determining the grant-eligible scope of work and grant award for selected projects.” The WQIF statute establishes equal priority. This concept of equal priority is also memorialized in the SNR’s WQIF Guidelines (11/06) in the Project Prioritization section for point source projects. To the extent that DEQ staff has a need to prioritize applications as practical matter for managing workloads, there are other governing regulations and permit requirements (deadlines) of greater importance and utility for prioritization purposes than cost-effectiveness. VAMWA agrees with DEQ’s “readiness-to-proceed” approach and encourages DEQ to continue prioritizing its work along those lines. Otherwise, time-sensitive grant agreement development efforts may be pushed to a lower priority based on lower cost-effectiveness when compared to other projects. It is important for VAMWA members that all aspects of DEQ’s related programs work well together, and we would be very concerned about DEQ permits that set tight deadlines and other programs such as grant agreement development that operate on different (slower) timelines or priorities as proposed in III.B. To address these concerns, in the second sentence of III.B., VAMWA recommends revising the statement as follows: “Now, cost-effectiveness will ~~also be an~~ *important consideration in prioritizing applications, and an essential factor in determining the grant-eligible scope of work and grant award for selected projects.*”

Response: Agree and the text has been modified as suggested.

Hampton Roads Sanitation District (HRSD)

1. Comment: DEQ needs to be flexible with regards to the extent and manner in which these policies will be applied retroactively. There is significant potential for unfair and adverse impacts if applied without regard for the specific circumstances of each project, especially when particular project steps or decisions have already been completed. Suggest language be included in GM #06-2012 under “Summary and Background” that the guidelines apply to grant agreement

to be executed on or after 10/1/07. DEQ should take into account the status and progress of the NRT project to determine if Guidelines application is appropriate.

Response: See response to VAMWA Comment #2.

2. Comment: Recommend the Executive Summary's final bullet be revised to read that "*a portion of any credits generated in a calendar year by a facility and not needed for compliance for an aggregated facility general permit be made available for trading*". DEQ should clarify in both the report and GM #06-2012 that the intent is for a portion of *excess* credits to be made available for trading *after* it has been verified that the WQIF grantee has complied with its own allocation requirement for the calendar year. HRSD strongly opposes any attempt to require commitment of Class A credits under a grant agreement as this effectively reduces the allocation assigned to a facility.

Response: See response to VAMWA Comment #11. *The revised wording for Guideline i.(2) states that WQIF grantees shall make all credits generated available for nutrient allocation compliance, which includes achieving the aggregate allocation under a "bubble" for multiple facilities with one owner.*

3. Comment: Recommend the draft language of Section III.A.6.e. of the Report be modified as follows: "*Require Value Engineering (VE) Analysis when the capital cost estimate for the nutrient reduction technology portion of a project is equal to or greater than \$10 million. The VE Analysis should be performed at the end of the Preliminary Engineering Report stage and/or before the final engineering design is complete. Multiple VE Analysis efforts could be required depending on the size and complexity of the project. ...*"

Response: Agree and the text has been modified as suggested

III. FINAL COST CONTROL MEASURES, POLICIES AND GUIDELINES

A. DEQ Guidance Memorandum #06-2012 – Section 6 Revised

GM #06-2012: Review Procedures for WQIF Grant Applications and Agreement Negotiations

6. Cost Control Measures to make Efficient Use of WQIF Grants:

The following methods and information shall be considered in developing grant agreements to be executed on or after October 1, 2007. In considering these items and determining whether they are appropriate for a particular grant agreement, DEQ will take into account the status and progress of the nutrient control project for which funding is requested.

- a. To assure that costs are fair and competitive, require compliance with the Virginia Public Procurement Act for purchase of all grant-funded goods and services, with no exception for smaller localities (population less than 3,500).
- b. Analyze and compare estimated project costs to prevailing, actual bid costs for similar project types.
- c. As needed, consult information sources such as the Engineering News Record (ENR) index (<http://enr.construction.com/features/conEco/>), Association of General Contractors (<http://www.agc.org/index.wv>), and Bureau of Labor

Statistics producer price index (<http://www.bls.gov/ppi>) for anticipated unit costs of basic construction materials and skilled labor.

- d.** Support for owner-selected alternatives to the standard procurement method of competitive sealed bidding, such as the “Design-Build” approach, public-private partnerships, or others, to aid in reducing capital costs and expediting construction schedules. For “Design-Build”, make information available on the Design-Build Construction Management Review Board regulations (1VAC17-20-10), along with any guidelines, model ordinances and Department of General Services staff contact information. For public-private partnerships, make information available on the statutory requirements (Va. Code §56-575.1) and model guidelines developed by the State Work Group under the Division of Legislative Services (dls.state.va.us/ppea.htm).
- e.** Require Value Engineering (VE) Analysis when the capital cost estimate for the nutrient reduction technology portion of a project is equal to or greater than \$10 million. The scope of the VE Analysis must be consistent with the definition for “value engineering” found in Va. Code § 2.2-1133.A. The VE Analysis should be performed at the end of the Preliminary Engineering Report stage and before final engineering design is complete. Multiple VE Analysis efforts could be required depending on the size and complexity of the project. The cost of the VE Analysis will be eligible for cost share reimbursement under the WQIF grant agreement. A grantee may perform a VE analysis if the NRT cost estimate is lower, but this is optional and voluntary.
- f.** A Life Cycle Cost Evaluation must be provided in conjunction with the Preliminary Engineering Report, for the overall NRT system selected and the feasible options considered. As needed, the evaluation should consider individual units and technology options within the selected process, to aid in determining if alternatives are available that may reduce the size of a unit, or the cost of equipment or construction, without sacrificing performance or reliability. If additional costs are incurred resulting from this extended evaluation or any pilot testing, these will be eligible for cost share reimbursement under the WQIF grant agreement. If a lower-cost alternative is shown to be viable and the grantee chooses a more costly option, grant eligibility may be prorated.
- g.** Review preliminary engineering report for design assumptions of unit processes associated with nutrient removal technology; receive upfront justification and negotiate cost-share limitations for overly-conservative design/sizing of any unit processes.
- h.** The WQIF Grant Guidelines allow nutrient removal technology systems to be sized to treat the flow in any reasonable and necessary expansion of the wastewater facility, which is generally limited to a 20-year design life. Details on the types of acceptable documentation and analyses, to substantiate expanded future design flow as reasonable and necessary, are described in Appendix B.
- i.** Nutrient Credit Exchange Program:
 - 1. The DEQ Director is not required to enter into a grant agreement with an eligible facility if it is determined that using nutrient credits in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (§ 62.1-44.19:12 et seq.) would be significantly more cost-effective than

installing nutrient controls at the facility in question. The criteria to be evaluated in making this determination will include, but are not limited to:

- Cost-effectiveness indicators such as the cost per pound of nutrient reduced at design flow or the cost per million gallons treated, compared to the cost of nitrogen and phosphorus credits acquired from the Water Quality Improvement Fund as specified in the Chesapeake Bay Watershed General Permit Regulation (9 VAC 25-820-70-Part 1.J.).
 - Non-monetary factors may also be considered, as applicable, such as:
 - water quality conditions in receiving waters (e.g., impaired waters; areas requiring more stringent nutrient control than the Chesapeake Bay regulations mandate);
 - the applicant's opportunity to undertake a nutrient upgrade simultaneously with other facility expansion, upgrade or rehabilitation projects;
 - the quantity of credits needed compared to the projected supplies available.
2. To aid in implementing the Nutrient Credit Exchange Program, WQIF grantees shall make all credits generated in a calendar year available for nutrient allocation compliance.

B. Implementation Actions

Prioritization and processing of WQIF grant applications was previously keyed to “readiness-to-proceed” when the Director was mandated to sign agreements with all eligible applicants. Now, cost-effectiveness will be an essential factor in determining the grant-eligible scope of work and grant award for selected projects. DEQ-WQIF staff will utilize the revised “Cost Control Measures to make Efficient Use of WQIF Grants” in GM #06-2012 when reviewing the Preliminary Engineering Report, which must include a life-cycle cost analysis of the feasible options considered and the selected NRT system. The least-cost alternative will be approved for grant funding unless the owner can justify the selection of a higher cost option, for reasons such as compatibility with existing treatment units, or benefits for operation and maintenance. Close coordination will be maintained with other DEQ units, especially:

- DEQ-Construction Assistance Program (administering the VCWRLF), for jointly funded projects to ensure consistency in making eligibility determinations;
- DEQ-Office of Wastewater Engineering, for conformity with the Sewage Collection and Treatment Regulations governing design and concentration-based performance requirements of the NRT system installed; and,
- DEQ-Water Permits, to determine each grantee's nutrient control requirements to comply with the Chesapeake Bay Watershed General Permit for Nutrient Discharges and any applicable individual VPDES permit provisions that affect NRT system selection and treatment stringency.

The full text of DEQ Guidance Memorandum #06-2012 (“Review Procedures for WQIF Grant Applications and Agreement Negotiations”) is accessible online at this weblink:

<http://www.deq.virginia.gov/bay/ApplicationReviewProceduresWQIF.pdf>